

What is claimed is:

1. A method of generating chlorine dioxide gas in a controlled release manner comprising:

(a) combining at least one metal chlorite and at least one solid material capable of reacting with the metal chlorite in the presence of water vapor but not capable of reacting in the substantial absence of liquid water or water vapor to thereby produce chlorine dioxide gas; and

(b) exposing said mixture to an atmosphere containing water vapor to produce chlorine dioxide gas in a sustained amount of from about 0.025 to 1,000 ppm of said atmosphere.

2. The method of claim 1, wherein said metal chlorite is selected from the group consisting of alkali metal chlorites and alkali earth metal chlorites.

3. The method of claim 2, wherein the metal chlorite is sodium chlorite.

4. The method of claim 1, wherein said at least one material is a dry hydrophilic material.

5. The method of claim 4, wherein the hydrophilic material alone or when exposed to water vapor has a pH of no more than about 10.5 when measured in a slurry of deionized water having a 30% solids content.

6. The method of claim 5, wherein the hydrophilic material has a pH of less than 9.

7. The method of claim 1, wherein the material which reacts with the metal chlorite is selected from the group consisting of zeolites, clay, acidified zeolites, acidified clays, salts, acids, organic acid anhydrides and mixtures thereof.

8. The method of claim 1, further comprising adding a desiccant to said mixture.

9. The method of claim 8, wherein the desiccant is selected from the group consisting of zeolite X, zeolite A, activated bentonite clay, activated silica gel, activated attapulgite and mixtures thereof.

10. The method of claim 1, wherein the sustained amount of chlorine dioxide gas produced is from about 0.025 to 500 ppm.

11. The method of claim 1, wherein the sustained amount of chlorine dioxide gas produced is from about 0.025 to 100 ppm.

12. The method of claim 1, wherein the sustained amount of chlorine dioxide gas produced is from about 0.025 to 50 ppm.

13. A system for generating chlorine dioxide gas in a controlled release manner comprising;

(a) a combination of at least one metal chlorite and at least one solid material capable of reacting with the metal chlorite in the presence of water vapor but not capable of reacting with the metal chlorite in the substantial absence of liquid water or water vapor; and

(b) an atmosphere comprising water vapor, wherein the combination reacts to produce chlorine dioxide gas in a sustained amount of from about 0.025 to 1,000 ppm of said total atmosphere.

14. The system of claim 13, wherein the metal chlorite is selected from the group consisting of alkali metal chlorites and alkaline earth metal chlorites.

15. The system of claim 14, wherein the metal chlorite is sodium chlorite.

16. The system of claim 13, wherein said at least one material is a dry hydrophilic material.

17. The system of claim 16, wherein the hydrophilic material alone or in the presence of water vapor has a pH of no more than about 10.5 when measured in a slurry of deionized water having a 30% solids content.

18. The system of claim 13, further comprising a desiccant.

19. A method of sanitizing, deodorizing or both sanitizing and deodorizing a solid, liquid, or gaseous environment comprising exposing said environment to the combination of at least one metal chlorite and at least one solid material capable of reacting with the metal chlorite in the presence of water vapor but not capable of reacting with the metal chlorite in the substantial absence of liquid water or water vapor, and exposing the combination to an atmosphere containing water vapor to produce chlorine dioxide gas in a sustained amount of from about 0.025 to 1,000 ppm of said atmosphere.

20. The method of claim 19 wherein the environment is a medical device.

21. The method of claim 19 wherein the environment is a food product.

22. The method of claim 19 wherein the environment is animal waste.

23. The method of claim 19 wherein the environment is liquid waste.

24. The method of claim 19 wherein the environment is potable water.

25. The method of claim 19 wherein the environment is a fabric.

26. The method of claim 19 wherein the environment is an atmosphere containing at least one noxious gas.

27. The method of claim 26 wherein the noxious gas includes smoke.